

CLAIMS

What is claimed is:

1 1. A method for discarding a data packet comprising the steps of:
2 classifying the data packet according to a type of service (TOS) indicator;
3 modifying the data packet with an internal service class (ISC) indicator
4 according to the TOS indicator;
5 comparing the ISC to a committed information rate (CIR); and
6 discarding the packet if the ISC exceeds the CIR.

1 2. The method of claim 1 wherein the step of comparing the ISC to the
2 CIR comprises the steps of:
3 finding an entry in a congestion clip table (CCT) using the ISC as a key
4 value; and
5 comparing the entry to the CIR.

1 3. The method of claim 1 wherein the step of classifying the data packet
2 according to a TOS indicator comprises the steps of:
3 analyzing a field of the data packet to determine a packet characteristic;
4 and
5 assigning the TOS indicator based upon the packet characteristic.

Sub B₁

1 4. A method for discarding a data packet comprising the steps of:
2 classifying the data packet according to a type of service (TOS) indicator;
3 modifying the data packet with an internal service class (ISC) indicator
4 according to the TOS indicator;
5 modifying the data packet with a watermark (WM) indicator according
6 to the availability of a system resource;
7 comparing the ISC, WM and a drop preference (DP) indicator of the
8 data packet to a committed information rate (CIR); and
9 discarding the packet if the DP exceeds the CIR.

1 5. The method of claim 4 wherein the step of comparing the ISC, WM
2 and DP to the CIR comprises the steps of:
3 concatenating the ISC, WM and the DP into a key value;
4 finding an entry in a congestion clip table (CCT) using the ISC as a key
5 value; and
6 comparing the entry to the CIR.

1 6. The method of claim 5 wherein the step of classifying the data packet
2 according to a TOS indicator comprises the steps of:
3 analyzing a field of the data packet to determine a packet characteristic;
4 and
5 assigning the TOS indicator based upon the packet characteristic.

Sub
B2

666T30"3311226

- 1 7. An apparatus for discarding a data packet comprising:
2 a classifier to classify the data packet according to a type of service (TOS)
3 indicator;
4 a modifier logically coupled to the classifier to modify the data packet
5 with an internal service class (ISC) indicator according to the TOS indicator;
6 a comparator logically coupled to the modifier to compare the ISC to a
7 committed information rate (CIR); and
8 a discarder logically coupled to the comparator to discard the packet if
9 the ISC exceeds the CIR.
- 1 8. The apparatus of claim 7 wherein the comparator comprises:
2 a congestion clip table (CCT) having an entry indexed by the ISC; and
3 a comparator logically coupled to the modifier to compare the entry to a
4 committed information rate (CIR).
- 1 9. The apparatus of claim 7 wherein the classifier comprises:
2 an analyzer to analyze a field of the data packet to determine a packet
3 characteristic; and
4 an assigner logically coupled to the analyzer to assign the TOS indicator
5 based upon the packet characteristic.

- 1 10. An apparatus for discarding a data packet comprising:
2 a classifier to classify the data packet according to a type of service (TOS)
3 indicator;
4 a first modifier logically coupled to the classifier to modify the data
5 packet with an internal service class (ISC) indicator according to the TOS
6 indicator;
7 a second modifier logically coupled to the classifier to modify the data
8 packet with a watermark (WM) indicator according to the availability of a
9 system resource;
10 a comparator logically coupled to the modifier to compare the ISC, WM
11 and a drop preference (DP) indicator of the data packet to a committed
12 information rate (CIR); and
13 a discarder logically coupled to the comparator to discard the packet if
14 the DP exceeds the CIR.
- 1 11. The apparatus of claim 7 wherein the comparator comprises:
2 a concatenator to concatenate the ISC, WM and the DP into a key value;
3 a congestion clip table (CCT) having an entry indexed by the key value;
4 and
5 a comparator logically coupled to the modifier to compare the entry to a
6 committed information rate (CIR).
- 1 12. The apparatus of claim 7 wherein the classifier comprises:
2 an analyzer to analyze a field of the data packet to determine a packet
3 characteristic; and
4 an assigner logically coupled to the analyzer to assign the TOS indicator
5 based upon the packet characteristic.

Sub
P4

666750" 99547660

1 13. An article of manufacture for use in a computer system to discard a
2 data packet, the article of manufacture comprising a computer usable
3 medium having computer readable program code means embodied in the
4 medium, the program code means including:
5 computer readable program code means embodied in the computer
6 usable medium for causing a computer to classify the data packet according to
7 a type of service (TOS) indicator;
8 computer readable program code means embodied in the computer
9 usable medium for causing a computer to modify the data packet with an
10 internal service class (ISC) indicator according to the TOS indicator;
11 computer readable program code means embodied in the computer
12 usable medium for causing a computer to compare the ISC to a committed
13 information rate (CIR); and
14 computer readable program code means embodied in the computer
15 usable medium for causing a computer to discard the packet if the ISC exceeds
16 the CIR.

1 14. The article of manufacture of claim 13 wherein the computer readable
2 program code means embodied in the computer usable medium for causing a
3 computer to compare the ISC to the CIR comprises:
4 computer readable program code means embodied in the computer
5 usable medium for causing a computer to find an entry in a congestion clip
6 table (CCT) using the ISC as a key value; and
7 computer readable program code means embodied in the computer
8 usable medium for causing a computer to compare the entry to the CIR.

1 15. The article of manufacture of claim 13 wherein the computer readable
2 program code means embodied in the computer usable medium for causing a
3 computer to classify the data packet according to a TOS indicator comprises:
4 computer readable program code means embodied in the computer
5 usable medium for causing a computer to analyze a field of the data packet to
6 determine a packet characteristic; and
7 computer readable program code means embodied in the computer
8 usable medium for causing a computer to assign the TOS indicator based
9 upon the packet characteristic.

666750" 9957E60

1 16. An article of manufacture for use in a computer system to discard a
2 data packet, the article of manufacture comprising a computer usable
3 medium having computer readable program code means embodied in the
4 medium, the program code means including:
5 computer readable program code means embodied in the computer
6 usable medium for causing a computer to classify the data packet according to
7 a type of service (TOS) indicator;
8 computer readable program code means embodied in the computer
9 usable medium for causing a computer to modify the data packet with an
10 internal service class (ISC) indicator according to the TOS indicator;
11 computer readable program code means embodied in the computer
12 usable medium for causing a computer to modify the data packet with a
13 watermark (WM) indicator according to the availability of a system resource;
14 computer readable program code means embodied in the computer
15 usable medium for causing a computer to compare the ISC, WM and a drop
16 preference (DP) indicator of the data packet to a committed information rate
17 (CIR); and
18 computer readable program code means embodied in the computer
19 usable medium for causing a computer to discard the packet if the DP exceeds
20 the CIR.

Sub
B6

660450 "99040600"

1 17. The article of manufacture of claim 16 wherein the computer readable
2 program code means embodied in the computer usable medium for causing a
3 computer to compare the ISC, WM and DP to the CIR comprises:

4 computer readable program code means embodied in the computer
5 usable medium for causing a computer to concatenate the ISC, WM and the
6 DP into a key value;

7 computer readable program code means embodied in the computer
8 usable medium for causing a computer to find an entry in a congestion clip
9 table (CCT) using the key value; and

10 computer readable program code means embodied in the computer
11 usable medium for causing a computer to compare the entry to the CIR.

1 18. The article of manufacture of claim 16 wherein the computer readable
2 program code means embodied in the computer usable medium for causing a
3 computer to classify the data packet according to a TOS indicator comprises:

4 computer readable program code means embodied in the computer
5 usable medium for causing a computer to analyze a field of the data packet to
6 determine a packet characteristic; and

7 computer readable program code means embodied in the computer
8 usable medium for causing a computer to assign the TOS indicator based
9 upon the packet characteristic.